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In cooperation with State, Federal and Other Agencies

COTTON INSECT CONDITIONS - APRIL 2, 1951

(First Cotton Insect Survey Report for 1951)

In previous years the first cotton insect survey reports were not issued before May with the two exceptions of March 25, 1948 and April 25, 1945. This year there has been such an unusual demand for information concerning the winter survival of the boll weevil and pink bollworm that it seems desirable to distribute much of the information that is now available in regard to the survival of these major pests of cotton.

In 1949 and 1950 the boll weevil populations were high over wide areas. This was due in part to the fact that the winters of 1948-49 and 1949-50 were mild and the weevils survived in unusually large numbers. In most of the States where the boll weevil occurs conditions during the summers of 1949 and 1950 were favorable for the weevil. A combination of factors made conditions favorable for the build up of heavy pink bollworm populations early in the season of 1950 and it was not surprising that the pink bollworm extended its spread over a wider area in Texas, Oklahoma, and Louisiana than during any previous year.

During the winter of 1950-51 lower temperatures occurred in most of the cotton-growing areas than for several years. These low temperatures were helpful in reducing the boll weevil and pink bollworm populations but these insects have survived in many areas in such quantities that the farmers must be prepared to fight them in 1951.

All cotton growers who have experienced losses from insect depredations during many recent years, as well as all farmers who are convinced that the proper application of insecticides to their cotton prevented serious losses on their farms, should be prepared to make a real fight against insects in their cotton fields during 1951. Any farmer who is complacent about the situation on his farm because zero temperatures occurred during the past winter may regret his complacency if he does not have insecticides to control the insects when they appear in his cotton fields during June, July, and August.

BOLL WEEVIL

Surface Ground Trash Examinations in South Carolina

Darlington County: On February 28 and March 1, 30 surface trash examinations were made on three farms in Darlington County. No weevils were found on one farm. On the other farms they were found at the rate of 1,936 and 2,904 live weevils per acre, or at the average rate for the County of 2,420, as compared with 12,100 live weevils per acre in March 1950.

Laurens County: On March 6 and 7 surface trash examinations were made on 5 farms in Laurens County. No weevils were found on 2 of these farms but on the other 3 farms live weevils were found at the rate of 968, 1,452, and 5,808 per acre. The average of the 5 fields examined in Laurens County was 1,645 weevils per acre,

as compared with 11,051 weevils per acre found in similar examinations made in March 1950.

Dorchester County: Surface trash examinations were made on 5 farms in Dorchester County on March 8. No weevils were found on 3 of the farms and on the other farms they were found at the rate of 484 weevils per acre. No surface trash examinations were made in Dorchester County during 1950.

Florence County: Surface trash examinations have been started in this county but the records are incomplete. As of March 23 live weevils had been found at an average rate of 1,832 per acre as compared with 11,108 in 1950.

Surface Ground Trash Examinations in North Carolina

Surface trash examinations to obtain information concerning boll weevil survival were made in 11 counties in North Carolina during February 1951. No previous records are available with which to compare the results of surface trash examinations made in February in North Carolina. However, surface trash examinations were made in 7 counties in March 1950 and comparison with those records will give some idea as to the relative survival of the weevils in 1950 and 1951.

<u>County</u>	<u>Live Boll Weevils Per Acre</u>	
	<u>March 1950</u>	<u>February 1951</u>
Cleveland	2,226	484
Rowan	2,660	193
Lee	9,680	968
Scotland	15,972	4,114
Hoke	8,067	3,872
Robeson	1,694	3,872
Sampson	6,937	1,452
Average	6,748	2,136

Examinations were made in 4 counties in North Carolina in February 1951 where no examinations were made in 1950, as follows:

<u>County</u>	<u>Live Boll Weevils Per Acre</u>
	<u>February 1951</u>
Halifax	4,598
Warren	1,694
Northampton	484
Davie	-0-

Using all the available records, live boll weevils were found at the rate of 1,976 weevils per acre in 11 counties in North Carolina during February 1951, as compared with 6,748 weevils per acre in 7 counties in March 1950. These records indicate that probably only 1/3 to 1/4 as many weevils are surviving the past winter in North Carolina as survived the winter of 1949-50. However, it should be noted that in one County, Robeson, live weevils were found at the rate of 3,872 per acre in February 1951 as compared with only 1,694 in March 1950. Also it should be noted that weevils were found at the rate of 4,598 per acre in Halifax County, 4,114 in Scotland County, and 3,872 in Hoke County. The weevils are probably surviving in similar numbers in many other counties.

Cleveland County: Surface trash examinations were made on 5 farms on February 5. No weevils were found on 3 farms but on the other 2 farms they were found at the rate of 968 and 1,452 weevils per acre. This makes an average of 484 weevils per acre for the 5 fields examined in Cleveland County in February 1951, as compared with an average of 2,226 live weevils per acre found in March 1950.

Sampson County: On February 12, surface trash examinations were made on 3 farms in Sampson County. No weevils were found on one farm, but on the other farms they were found at the rate of 969 and 3,388 live weevils per acre. This makes an average of 1,452 live weevils per acre in February 1951, as compared with 6,937 live weevils per acre in March 1950.

Robeson County: Surface trash examinations were made on February 12 and live weevils found at the rate of 1,936 and 5,808. The average in Robeson County was 3,872 live weevils per acre in February 1951 as compared with 1,694 in March 1950.

L. C. Fife, Entomologist, Florence, South Carolina, reported on February 14 the average number of live weevils per acre in Cleveland, Sampson, and Robeson Counties was 1,452 as compared with 3,533 in March 1950.

Rowan County: On February 15 surface trash examinations were made on 5 farms. No weevils were found on 4 of these farms and on the other farm they were found at the rate of 968 live weevils per acre. This made the average for Rowan County 193 live weevils per acre in February 1951 as compared with 2,660 live weevils per acre in March 1950.

Davie County: Surface trash examinations were taken from only one farm and no boll weevils were found. No examinations were made in this County in 1950.

Halifax County: Surface trash examinations were made on 2 farms late in February and boll weevils were found at the rate of 484 and 8,712 live weevils per acre.

Warren County: Surface trash examinations were made on 2 farms late in February and live boll weevils were found at the rate of 1,452 and 1,936 per acre.

Northampton County: Surface trash examinations were made on 2 farms late in February. No boll weevils were found on 1 farm and on the other farm they were found at the rate of 968 live weevils per acre.

Scotland County: Surface trash examinations were made on 2 farms late in February and live weevils were found at the rate of 1,452 and 6,776 per acre.

Hoke County: Surface trash examinations were made on 2 farms late in February and live boll weevils were found at the rate of 3,388 and 4,356 per acre.

Lee County: Surface trash examinations were made on only 1 farm late in February where live boll weevils were found at the rate of 968 per acre.

Surface Ground Trash Examinations in Louisiana

The annual spring collection of ground trash samples was made in the vicinity of Tallulah from February 26 to March 15. A total of 200 samples were collected from the 20 fields where the fall collections were made, with the exception of 3 fields that were substituted for 3 fields that had been burned over since the fall collection was made. In the 200 samples collected a total of 144 live

weevils and 8 dead weevils (table 1) were found this spring, or the equivalent of 1,742 live weevils per acre, as compared with the 379 live weevils, or 4,586 per acre, found in the fall collection. The indicated winter survival was 38% (table 2). This survival figure of 38% has been exceeded only four times during the past 15 winters that these ground trash examinations have been made near Tallulah. The number of live weevils per acre this spring (1,742) has been exceeded only in the spring of 1950 (2,202) following a very mild winter, when the low temperature of the winter was 21°F. , which occurred the first week in November; whereas, the high survival (1,742) this spring followed the lowest temperature ever recorded at this station (-12°F. on February 2). However, the low temperature this winter occurred after the ground had been blanketed with 2 inches of frozen rain and sleet, upon which $4\frac{1}{2}$ inches of snow fell before the temperature of -12°F. occurred.

Since it was known that a very heavy population of weevils had gone into hibernation in November, and fairly low temperatures occurred in November (19°F.) and December (17°F.), there was considerable interest in how the weevils were surviving the winter. Hence, on January 22 and 23, 50 samples were collected from 5 fields where collections had been made in November 1950, and 75 live weevils, or 3,630 per acre, were found in November. A total of 66 live weevils, or 3,194 per acre, were found in the January collection, or an indicated survival of 88% (table 3). Following the low temperature of -12°F. that occurred on February 2, 40 samples were collected on February 13 and 14, and 40 live weevils, or the equivalent of 2,420 weevils per acre were found (table 3). Three of these fields were the same fields from which samples were collected in November and January, and 25 live weevils, or 2,017 per acre, were found in these 30 samples, or an indicated survival of 56% from comparable fields (table 3). From these same 3 comparable fields in the March collection, a total of 15 live weevils, or 1,210 per acre, were found, or an indicated survival of 33%, or just slightly lower than the average survival of 38% for the 20 fields from which collections were made in March (table 3).

In table 3, the results for the 170 samples collected in March from the same 17 fields where November collections were made are compared. A total of 128 live weevils were recovered from these 17 fields in March, as compared with 278 in November, or an indicated survival of 46%, which is a little higher survival than is shown for the 200 samples where 3 fields (30 samples) were substituted in the spring collection, because 3 fields had been burned over since the November collection was made.

For the past 10 years that 150 or more samples have been collected each fall, the average winter survival of boll weevils in ground trash near Tallulah was 38%, comparing the spring examination with the fall. The survival this spring is also 38%. Thus, it is shown that the boll weevil survival in ground trash in the vicinity of Tallulah following the lowest temperature ever recorded at the Tallulah laboratory is equal to the average for the past 10 years.

Table 1. Spring Ground Trash Examinations for Hibernating Boll Weevils.
February 26 to March 15, 1951, Tallulah, Louisiana

[illegible]

Table 2. Summary of Fall and Spring Ground Trash Examinations From the Spring of 1936 Through the Spring of 1951, Tallulah, Louisiana

Year	Fall Examination			Spring Examinations			Survival Per Cent
	Number of Samples	Live Weevils		Number of Samples	Live Weevils		
		Number Found	Number per Acre		Number Found	Number per Acre	
1936				189	11	141 \pm 55	
1936-37	16	14	2,118 \pm 728	48	1	50 \pm 50	2 \pm 2
1937-38	56	12	519 \pm 211	78	6	186 \pm 96	36 \pm 24
1938-39	98	52	1,284 \pm 246	118	11	226 \pm 71	18 \pm 6
1939-40	82	76	2,243 \pm 358	89	7	190 \pm 69	8 \pm 3
1940-41	104	31	721 \pm 175	200	76	920 \pm 130	128 \pm 36
1941-42	150	92	1,484 \pm 198	200	27	327 \pm 76	22 \pm 6
1942-43	200	241	2,916 \pm 391	200	62	750 \pm 122	26 \pm 5
1943-44	250	257	2,488 \pm 256	120	31	625 \pm 171	25 \pm 7
1944-45	160	161	2,435 \pm 342	160	100	1,512 \pm 237	62 \pm 13
1945-46	200	347	4,199 \pm 433	200	88	1,065 \pm 138	25 \pm 4
1946-47	200	233	2,698 \pm 365	210	37	426 \pm 113	16 \pm 5
1947-48	150	73	1,178 \pm 222	150	11	177 \pm 65	15 \pm 6
1948-49	150	133	2,146 \pm 318	150	106	1,710 \pm 324	80 \pm 19
1949-50	200	267	3,231 \pm 382	200	182	2,202 \pm 286	66 \pm 12
1950-51	200	379	4,586 \pm 623	200	144	1,742 \pm 229	38 \pm 7

Table 3. Summary of Ground Trash Examinations During the Winter 1950-51
Tallulah, Louisiana

Fall - November 10 to 22			January 22 and 23			
Number of Samples	Live Weevils		Number of Samples	Live Weevils		Survival Per Cent
	No. Found	No. per Acre		No. Found	No. per Acre	
200	379	4,586				
170	278	3,957				
50	75	3,630	50	66	3,194	88
30	45	3,630	30	40	3,227	89

February 13 and 14				Spring - February 26 to March 15			
Number of Samples	Live Weevils		Survival Per Cent	Number of Samples	Live Weevils		Survival Per Cent
	No. Found	No. per Acre			No. Found	No. per Acre	
				200	144	1,742	38
				170	128	1,822	46
30	25	2,017	56	30	15	1,210	33
40	40	2,420					

Boll Weevil in Oklahoma

C. F. Stiles, Extension Entomologist, wrote on March 5: "The Oklahoma cotton farmers are afraid that very few weevils were killed since the eastern two-thirds of the State was covered with snow which ranged from two to six inches in depth. This was on the ground when we had our below zero temperatures."

PINK BOLLWORM

There is unusual interest in the pink bollworm situation because this pest spread farther in 1950 in Texas and Louisiana than in any previous year. Many are asking what the pink bollworms will do in 1951. No one can answer that question with assurance. Through the fine cooperation of the cotton growers, extension workers, and other local and State and Federal agencies the early clean up campaign of the cotton fields last summer and fall was very successful in most of the counties where the pink bollworm occurs. The low temperatures of the past winter is another favorable factor in the fight against the pink bollworm. In general the temperatures were not sufficiently low or did not remain low over a long enough period to kill most of the pink bollworms. Many have survived the winter.

During the week ending March 3 inspectors of the Division of Pink Bollworm Control found living pink bollworms in old cotton bolls, locks and seed on the soil surface in the following 12 Texas counties: Bee, Brooks, Cameron, Hidalgo, Jim Wells, Kleberg, LaSalle, Live Oak, Maverick, Starr, Webb, and Zapata. In one field in Bee County it was estimated that pink bollworms occurred at the rate of 1,936 per acre.

During the week ending February 24 inspectors of the above Division found live pink bollworms in old cotton bolls, locks and debris on the soil in the following 13 counties: Bee, Cameron, Dimmit, Frio, Hidalgo, Jim Wells, Karnes, Kleberg,

LaSalle, Live Oak, Maverick, San Patricio, and Zavala. It was estimated in one field in Kleberg County pink bollworms occurred at the rate of 8,712 per acre. (Note: New counties underscored.)

During the week ending February 17 inspectors of the Division of Pink Bollworm Control found living pink bollworms in the following 14 counties: Bee, Bexar, Cameron, DeWitt, Duval, Hidalgo, Jim Hogg, Jim Wells, Karnes, Live Oak, Maverick, Nueces, San Patricio, and Zavala. Estimates as to the number of live pink bollworms in certain fields were as follows: Bee County - 1,936 pink bollworms per acre, Cameron County - 179 per acre, Live Oak - 2,420 and 1,452, and in Nueces - 4,840 per acre.

During the week ending February 10 inspectors of the Division of Pink Bollworm Control found live pink bollworms in the following 14 counties: Bee, Bexar, Calhoun, Cameron, Duval, Gonzales, Hidalgo, Jim Hogg, Jim Wells, Karnes, Maverick, San Patricio, Starr, and Victoria. Estimates as to the population of pink bollworms in a certain field in Bee County were 484 pink bollworms per acre; in Cameron County 121, Hidalgo 968 and 1,210, Jim Wells 1,161, and in San Patricio 44,528 living pink bollworms per acre.

During January the Division of Pink Bollworm Control found living pink bollworms in the inspection of cotton debris on the soil surface and in the inspection of old cotton bolls in the following 19 counties: Bee, Bexar, Cameron, Duval, Hidalgo, Howard, Jim Hogg, Jim Wells, Karnes, Kimble, Live Oak, Maverick, Nueces, Refugio, San Patricio, Starr, Victoria, Willacy, and Zavala.

A. J. Chapman, Brownsville, Texas, wrote on January 29: "The situation with respect to pink bollworm survival in the Lower Valley area is perhaps not as serious as you might have inferred from our weekly reports. As indicated in the reports, a good many resting pink bollworm larvae have been found in open bolls during recent weeks. These infestations are largely confined to random plants located along ditches, roads, edges of fields, etc., that were not destroyed by the August 31 deadline. Thus far, weather conditions have been very favorable for survival of these larvae. The stalks were destroyed earlier and the field clean-up was much more thorough this year than last year. The unusually hot, dry weather that prevailed in September killed a high percentage of the pink bollworm larvae in bolls. Tests during this period to determine the effects of the high temperatures on pink bollworm mortality indicated that over 90 per cent of worms in the bolls exposed on the soil surface had been killed by the heat. The freezing weather that occurred in early December killed back the zoca cotton and eliminated the opportunities for further pink bollworm breeding. If we have some rain in the near future to stimulate an early emergence, the pink bollworm carryover should be lower than last year.

"We are concerned over the possibilities of the pink bollworm surviving the winter in some counties farther north, where pink bollworms were fairly numerous last year, such as Refugio, Calhoun, Guadalupe, Karnes, Bexar, etc. The weather reports indicate that the conditions thus far have not been particularly unfavorable for pink bollworm survival."

On February 15 Mr. Chapman wrote: "The situation so far as the pink bollworm is concerned has not changed in this area but in areas where the temperature dropped to around 10° F. there is a definite decrease in the number of live pink bollworms, hence the counties to the north and west of the Valley will likely have a lower percentage of survival. Some much needed moisture was received over most of the area February 13 which will probably stimulate early emergence and this

may be a factor in further reducing the possibility of pink bollworm carryover to the crop season."

The Division of Pink Bollworm Control has reported the finding of living pink bollworms in many counties of southern Texas during the winter and early spring months of 1951. In all counties where living pink bollworms were found during February and March there are likely to be fields of cotton that will become infested by the time cotton is blooming and heavy infestations could develop during the season. All farmers in those counties should be on the lookout for the pink bollworm and be prepared to use DDT for its control where infestations justify the use of an insecticide. The following table indicates the counties in which pink bollworms were found.

County	W e e k E n d i n g					
	Mar. 10	Mar. 3	Feb. 24	Feb. 17	Feb. 10	Feb. 3
Atascosa	--	-0-	-0-	--	--	--
Bee	xx	xx	xx	xx	xx	-0-
Bexar	xx	--	--	xx	xx	--
Brooks	xx	xx	-0-	-0-	-0-	--
Caldwell	--	--	--	--	-0-	--
Calhoun	xx	--	--	-0-	xx	--
Cameron	xx	xx	xx	xx	xx	xx
Dimmit	--	--	xx	--	--	--
DeWitt	--	--	--	xx	-0-	--
Duval	-0-	-0-	--	xx	xx	--
Fayette	-0-	--	--	-0-	-0-	-0-
Frio	--	--	xx	--	--	--
Glasscock	--	--	--	-0-	--	--
Goliad	xx	--	--	--	-0-	--
Gonzales	xx	--	--	--	xx	--
Hidalgo	xx	xx	xx	xx	xx	--
Jim Hogg	--	--	--	xx	xx	--
Jim Wells	xx	xx	xx	xx	xx	-0-
Karnes	--	--	xx	xx	xx	--
Kleberg	xx	xx	xx	--	--	--
LaSalle	--	xx	xx	--	--	--
Live Oak	xx	xx	xx	xx	--	xx
McMullen	--	-0-	--	--	-0-	--
Maverick	xx	xx	xx	xx	xx	--
Medina	--	--	--	-0-	--	--
Nueces	--	-0-	--	xx	--	xx
Refugio	-0-	-0-	-0-	--	--	--
San Patricio	-0-	-0-	xx	xx	xx	xx
Starr	--	xx	--	--	xx	--
Victoria	-0-	--	--	--	xx	--
Webb	--	xx	-0-	--	--	--
Willacy	-0-	-0-	-0-	-0-	-0-	--
Zapata	--	xx	--	--	--	--
Zavala	-0-	--	xx	xx	--	--

Legend: xx Indicates inspections made and live pink bollworms found.

-- Indicates no inspections made.

-0- Indicates inspections made and no live pink bollworms found.

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PREPARED APRIL 2, 1951

